USAID Nawiri Learning Brief: Malnutrition Hotspot Mapping & Analysis

Background

This brief summarizes findings from the analysis and mapping of acute malnutrition (AM) hotspot clusters and seasonality trends in Isiolo and Marsabit Counties, based on available nutrition data over the last ten years (from 2010 to 2020).

The goal of the AM hotspot analysis and mapping was to identify clusters of AM and seasonal trends in Isiolo at county, sub-county and ward levels, to inform Nawiri targeting. To this end, the study involved a systematic review of two secondary data sets of children under five years: (i) Integrated Standardized Monitoring and Assessment of Relief and Transitions (SMART) survey data to establish levels of global acute malnutrition (GAM) for the analysis and identification of malnutrition hotspots, and (ii) Middle and Upper Arm Circumference (MUAC) data from the National Drought Management Authority (NDMA) sentinel surveillance sites, to analyze malnutrition trends over the years and seasons at the county, sub-county and ward levels.

It is important to note that MUAC data is collected on a monthly basis, making it appropriate for trend analysis. The SMART data was also used, but only to a limited extent in establishing seasonal trends, because the majority of surveys were conducted during the same season across years — the dry season following the short rains season.

Analysis was limited to the data that met appropriate quality parameters (representativeness, plausibility checks, number of clusters/ sentinel sites, sample size etc.), with GAM based on weight for height (WHZ) and MUAC, as nutritional status indicators.

Levels of acute malnutrition were categorized according to global Integrated Phase Classification (IPC) severity phases; Acceptable (<5%), Alert (5-9.9%), Serious (10-14.9%), Critical (15-29.9%) and Extremely Critical (>=30%).

[1] Findings on Marsabit are limited to 2010-2019 as no data was available for 2020

[2] Malnutrition hotspots were identified at the sub-county and ward levels, and seasonality conducted at county and sub-county levels

[3] A geographical region with persistent high level of acute malnutrition (>15%) is considered a malnutrition hotspot

Summary Findings and Lessons Learned

- Both Marsabit and Isiolo Counties consistently experience high levels of AM, even in non-drought years. The findings showed rates of GAM in Marsabit County persistently above the emergency threshold of ≥15%. In the period from 2010 to 2019, the county experienced seven years of GAM rates above this threshold and three years within the critical threshold (10–14.9% GAM). Of the four Marsabit sub-counties, North Horr and Laisamis were classified as malnutrition "hotspots" through the study, with GAM consistently exceeding the 15% threshold. In 2019, GAM rates in North Horr and Laisamis sub-counties were alarming at 25.1% and 30.7% respectively. Although Saku and Moyale sub-counties were not classified as malnutrition hotspots, the study cautions that pockets of AM do occur within both these sub-counties. However, all wards in North Horr and Laisamis were classified as "hotspots," with North Horr and Turbi wards (North Horr sub-county) witnessing the highest rates of AM. Loiyangalani and Kargi South having the highest rates in Laisamis.

- In Isiolo County, the findings revealed no years where the prevalence of GAM was within the acceptable range (≤ 5%). In three of the ten years, GAM rates exceeded the emergency threshold of ≥ 15%, and for six years GAM was above the critical threshold (at 10–14.9%). Within the county, the three sub-counties most vulnerable to AM were Garbatulla, Merti, and Isiolo Central, which saw four years, three years, and two years of GAM exceeding the ≥ 15% threshold respectively. While Isiolo Central showed the lowest levels of AM at sub-county level, at ward level Oldonyiro and Ngaremara wards were the most vulnerable in Isiolo County. Another interesting finding was that the temporal distribution of AM in neighboring Cherab and Chari wards is the opposite of one another – in years when Cherab presents emergency levels of AM, Chari presents acceptable or near acceptable GAM levels and vice versa, possibly indicating differences in the drivers of acute malnutrition in these particular wards, despite sharing similar administration units.

Applying the Findings and Lessons Learned

The analysis has primarily been used to inform Nawiri intervention targeting and research studies. For example, hotspot locations identified were used as the sampling frame for the Participatory Epidemiology (PE) study, for identifying the longitudinal study implementation sites and sampling, as well as for graduation pilot targeting. Geographical focus areas for Nawiri Y3 and Phase II interventions is also directly based on the findings. In addition, the analysis identified several limitations with existing nutrition data:

- The spatial and temporal variability in acute malnutrition, even within the same geographical unit, is an indication of variability in the drivers of malnutrition. This suggests that a one-size-fits-all package of interventions is unlikely to address acute malnutrition in all areas; a finding reaffirmed by the Participatory Epidemiology (PE) study.

- The aggregation of data at higher administrative levels, like the sub-county (e.g., through SMART surveys), can be misleading and result in local "hotspots' being missed, with vulnerable communities excluded from nutrition interventions. For related reasons, small area surveys may be warranted at times.

- There are data limitations linked to the timing of SMART surveys (mainly conducted during the dry season) and therefore no potential observation of variability by season. In addition, SMART surveys do not collect qualitative data to address the Whys, this being a gap that should be addressed to inform the design of programs. As such, there is a need for a more comprehensive analysis of the seasonality of acute malnutrition; going beyond the distribution and prevalence of malnutrition and precipitation, to include the seasonality of aspects of human behavior like women's workloads, disease outbreaks and other factors potentially contributing to malnutrition, including the relationship between the different factors.

Key Lessons Learned	Adaptation or implication	Link to the DIP or TOC
1. Both Marsabit and Isiolo are considered malnutrition hotspots, with specific sub-counties and wards being more vulnerable than others. However, malnutrition hotspots were also identified within sub-counties considered the least vulnerable.	1. Prioritize sub-counties and wards identified as consistently showing high rates of AM, including wards like Ngaremara, which fall within less vulnerable sub-counties.	P1, P2 and P4
2. Limitations of existing nutrition data include a limited understanding/ analysis of the seasonality of malnutrition and the different factors that contribute to malnutrition over time and space	2. The Nawiri PE study and the longitudinal study, including its qualitative component, will help address these data limitations to an extent.	KRA 3.1.2.1.6 & KRA 3.1.1.2 c

See the full Nawiri report on Malnutrition Hotspots Mapping & Analysis in Isiolo County, Kenya

See the full Nawiri report on Malnutrition Hotspots Mapping & Analysis in Marsabit County, Kenya

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